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EXAMINER

QIN, YIXING

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/893,644	Applicant(s) MATSUI, KENTA	
	Examiner Yixing Qin	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

I. Claims 1, 5, 6, 8-10, 14, 15, 17-19, 23, 24, 26, 27, 31, 32, and 34-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Blank (U.S. Patent No. 5,577,179).

Blank discloses a system and method for editing images that includes the capabilities of layering two or more images together and matching the lighting condition of the images to make it appear that the composite image was produced under one lighting.

1. **Claims 1, 10, 19, and 27**

An image processing apparatus (method, program, computer-readable storage medium storing a computer program) comprising:

- **synthesizing means (step) for synthesizing a first pixel with a second pixel so as to generate a new pixel based on a transmissivity indicative of a ratio of the first pixel to the second pixel in the new pixel; and**
- Blank discloses in Fig. 4h and column 10, lines 47-58 that "...consider a final composite image having four layers (Z=0 to 3) as shown in FIG. 4h. If a pixel 150 at a particular X,Y cartesian coordinate address of the top layer (Z coordinate=3)

has an attribute of transparent, then a pixel 151 at the same X,Y coordinate on the layer below (Z=2) will be seen if the attribute is opaque. However, if the pixel 151 of layer Z=2 is also transparent, then a pixel 152 at the same X,Y coordinate on layer Z=1 will be seen if it has an attribute of opaque and so on. For a pixel 153 on the background or Z=0 layer to be seen, all pixels on higher numbered layers for that X,Y coordinate address must all have an attribute of transparent.

The ideas of transmissivity and opacity/transparency are the essentially the same concept.

- One can see from Fig. 4h that some areas of the images of layers Z=1 to Z=3 are opaque (i.e. the white areas), allowing the background in Z=4 to show up on the final composite picture.
- Furthermore, Blank discloses in column 16, lines 48-65 that "...[a]t step 426, the computer 130 selects the three pixels just outside the edge of the object and uses them as edge pixels in performing a blend operation...wherein the aforementioned three pixels are blended to the background layer directly below the current object layer...the computer 130 sets the transparency or opacity of each of the three object layer edge pixels according to a blend factor that is found in the file header. The blend factor, having a value from zero (opaque) to 127 (transparent), is used for dynamic variable transparency of the object, and is selected from within this range of values by the programmer using trial and error in view of what the results are desired to be. One would understand this range of

0 to 127 is simply used as a ratio for determining how much of a pixel should “show through.”

- **attribute determination means (step) for determining an attribute of the new pixel based on attribute data of the first pixel, attribute data of the second pixel, and the transmissivity.**
- Blank discloses in Fig. 8 a flowchart showing the matching of the background gamma (includes many attributes such as hue, saturation, lightness, intensity, contrast, etc. – column 10, lines 12-15) to the gamma of a user image so that the combined image can look like it was imaged under the same lighting conditions (column 15, lines 52-57).
- Furthermore, in steps 406, 408 and 410 of Fig. 8, one can see that the gamma can be matched to either the user or the background value. Blank discloses in column 10, lines 15-17, that “[t]he top-level gamma function can 262 can change any combination of the gamma attributes by : pixel, area of the image or the entire image.” One would understand that the resulting pixel that has undergone a gamma change would take on either the gamma attributes of the user’s image pixel (i.e. “**first pixel**”) or the background pixel (i.e. “**second pixel**”).

5. **Claims 5, 14, 23 and 31**

The image processing apparatus (method, program, computer-readable storage medium storing a computer program) according to claim 1 (10,19, 27), further comprising

- **image processing means (step) for performing image processing on a pixel, obtained by said synthesizing means (step), based on the attribute data of the pixel.**
- Blank discloses in Fig. 9 and column 16 lines 29-30, that in Fig. 9, "...the function 268 for enhancing the pixels of an image will be described." The "enhancing" shown in Fig. 9 reads on the claimed "**processing.**"

6. Claims 6, 15, 24 and 32

The image processing apparatus (method, program, computer-readable storage medium storing a computer program) according to claim 5 (14, 23, 31), wherein

- **the processing performed by said image processing means (step) includes color conversion processing.**
- Blank discloses in column 16, lines 48-61 that a blend operation based on the hues of pixels as a means of enhancing pixels. Hue is essentially a color attribute and the blending of the hues as described by the Blank reference involves the use of a blend factor that determines the opacity (or transparency of the resulting blended pixel – same column, lines 61-65). This change in opacity effectively changes the appearance/color of a pixel.

8. Claims 8, 17, 26, and 34

The image processing apparatus (method, program, computer-readable storage medium storing a computer program) according to claim 1 (10, 19, 27), further comprising

- **output means (step) for outputting an image, constructed with a pixel, synthesized by said synthesizing means (step) and having an attribute determined by said attribute determination means (step).**
- Blank discloses in column 6, lines 62-63 that his "...apparatus 104 further includes a printer 118..."

9. Claims 9, 18

The image processing apparatus according to claim 8 (17), wherein

- **said output means (step) is printing means/performed by print engine.**
- Blank discloses in column 6, lines 62-63 that his "...apparatus 104 further includes a printer 118..."

35. Claim 35

The image processing apparatus according to claim 1, wherein

- **the first pixel is a pixel of an image generated based on print data received from a host computer, and the second pixel is a pixel of a form image stored in advance in said image processing apparatus.**
- Blank discloses in column 8, lines 33-36 that two images are captured and digitized. In the same column, lines 55-65, Blank discloses that a user may

choose a background and may layer his taken image (such as an image of his head) onto the background (as seen in Fig. 4). One would understand that the backgrounds are premade and stored in the computer as well.

36. Claim 36

The image processing apparatus according to claim 1, wherein

- **a value of the attribute data is any one of a character, a graphic, or an image.**
- The Blank reference discloses the layering of various images. It would be inherent to have image data in images.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

II. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blank (U.S. Patent No. 5,577,179).

37. Claim 37

An image processing apparatus comprising:

- **an input interface unit to which print data is inputted; first memory for storing form image data; a processing unit for generating input image data based on the print data, synthesizing the input image data with the form image data based on a designated transmissivity, and determining attribute data of synthesized image data based on attribute data of the input image data, attribute data of the form image data, and the transmissivity; and second memory for storing image data generated by said processing unit and attribute data of the image data**
- Blank discloses in Fig. 2 a graphical interface 132, a computer and a storage 134. It would be a matter of design as to which memory (i.e. memory inherent in the computer or the storage 134) to store the various data. The processing of the attributes of the image data based on transmissivity has been discussed in the rejection to claims 1, 10, 19 and 27 above.

III. Claims 2, 4, 11, 13, 20, 22, 28, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blank (U.S. Patent No. 5,577,179) in view of Buxton et al (U.S. Patent No. 6,118,427).

The Buxton et al reference discloses a system and a method for enhancing performance on a GUI with transparent windows. Text or images can be layered.

2. Claims 2, 11, 20 and 28

- **The image processing apparatus (method, program, computer-readable storage medium storing a computer program) according to claim 1 (10, 19, 27), wherein in a case where the transmissivity is higher than a threshold value, said attribute determination means (step) determines the attribute data of the second pixel as attribute data of the new pixel, whereas in a case where the transmissivity is lower than the threshold value, said attribute determination means determines the attribute data of the first pixel as the attribute data of the new pixel.**
- Blank discloses in column 16, lines 1-12 that "...the computer 130 at step 404 determines whether the hue gamma of the object will be changed to match the hue gamma of the background or whether the hue gamma of the background will be changed to match the hue gamma of the object. This determination by the computer 130 can be accomplished in response to an interactive command by the user of the system 100, i.e., the user of the system 100 can decide whether he wishes to change the lighting condition of the background..."
- The Blank reference does not explicitly state that the user (or the computer) uses some sort of threshold to determine which lighting condition the background will be. However, it does disclose the use of thresholds when enhancing pixel images (column 16, lines 29-47, especially lines 41-47)
- The secondary reference, Buxton et al, discloses in column 3, lines 61-67 and column 4, lines 1-15, various thresholds for identifying images as solid or transparent. Furthermore, in column 6, lines 36-38, Buxton et al discloses that

"...a GUI must distinguish the attributes of foreground objects as much as possible from attributes of background objects." One would understand that if an object is considered solid (i.e. the layer above it is very transparent or itself is very solid as to cover a layer below it or both), the "attribute" of the pixels on the display would take on the attributes of object. For example, if a very bright picture is completely solid and overlapped above a very dark picture, the resulting picture shown on the screen would be bright.

- Both references are in the art of manipulating images through the use of layers and transparency. This will serve as the motivation for the combination of the Blank and Buxton references for those claims using these two references in this office action.
- It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate thresholds as a way to determine the attributes of a resulting composite image into the invention by Blank. The motivation would be to allow an automated process in which to decide on the attributes of a composite image, instead of having a user choose.

4. Claims 4, 13, 22, and 30

- **The image processing apparatus (method, program, computer-readable storage medium storing a computer program) according to claim 2 (11, 20, 28), wherein said attribute determination means (step) determines the**

threshold value in accordance with a combination of values of the attribute data of the first pixel and the second pixel.

- Again, the Blank reference does not go into great detail about the thresholding aspect of image processing. However, the secondary reference, Buxton et al, discloses various experiments performed in which users were to identify background images with varying transparency foreground overlapped images (column 11, lines 14-19). One can see in tables 2, 3 and 4 in columns 11 and 12, the results of the experiments with respect to a transparency level.

Transparency is the measure of the light that can pass through a pixel, making it obvious that pixels would contain this attribute.

- Furthermore, in column 17, lines 40-58, Buxton et al discloses a program flow of their invention, showing that there are different threshold levels for different types of applications (text, animation, modeling, etc.). These are based on results from the experiments.
- The motivation for the addition of this feature into the Blank invention is that different combinations of data may need different criteria in order to process.

IV. Claims 7,16, 25 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blank (U.S. Patent No. 5,577,179) in view of Sugawa (U.S. Patent No. 5,371,610)

The Sugawa reference discloses an apparatus capable of processing a selected area of image data.

7. Claims 7, 16, 25 and 33

The image processing apparatus (method, program, computer-readable storage medium storing a computer program) according to claim 5 (14, 23, 31), wherein

- **the processing-performed by said image processing means (step) includes pseudo-tone processing.**
- The Blank reference does disclose the blending of the hues of the pixel, but does not mention that pseudo toning processing can be performed on the pixels.
- The secondary reference, Sugawa, discloses in column 1, lines 50-52, that “[p]seudo-tone processing based on the dither method or error diffusion method, on the other hand, is better suited for halftone images such as photographs.”
- Since both references are in the art of image processing and image enhancement, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate pseudo tone processing into the Blank invention. The motivation would be to provide a different method of enhancing images that could be more suited to the particular needs of a user.

V. Claims 3, 13, 21, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blank (U.S. Patent No. 5,577,179) in view of Buxton et al (U.S.

Patent No. 6,118,427) and further in view of Rosenfeld et al ("*Digital Picture Processing*," second edition, volume 2).

The Rosenfeld et al reference discloses a multilevel thresholding concept to be used on processing grayscale images.

3. Claims 3, 12, 21, and 29

- **The image processing apparatus (method, program, computer-readable storage medium storing a computer program) according to claim 1 (10, 19, 27), wherein in a case where the transmissivity is higher than a first threshold value, said attribute determination means determines the attribute data of the second pixel as the attribute data of the new pixel, in a case where the transmissivity is lower than a second threshold value which is lower than the first threshold value, said attribute determination means determines the attribute data of the first pixel as the attribute data of the new pixel, and in a case where the transmissivity is lower than the first threshold value but higher than the second threshold value, said attribute determination means determines attribute data of a pixel having a higher priority as the attribute data of the new pixel.**
- Again, the Blank reference does not go into great detail about thresholding, it does disclose the layering of images and the change in the gamma (i.e. attributes of the layered images to match some specified attribute). The secondary

reference, Buxton et al discusses both thresholds and layering images, but does not explicitly disclose the use of two thresholds as a means of judging the attribute of a resulting pixel when two pixels are combined.

- However, the tertiary reference, Rosenfeld et al discloses in pages 66-68, the idea of multilevel thresholding for a grayscale image. One can see from Fig. 4 on page 66, that Fig. 4c shows the thresholded image of Fig.4a. Essentially, pixels are converted to black, white or gray depending on where the pixels falls (i.e. above, below or in between the two thresholds). One skilled in the art of image processing would understand that the transmissivity is essentially a measure of the lightness or the darkness of a pixel, which the Rosenfeld reference is doing with the scale of grayness of an image.
- Since all three references are in the art of image processing and image enhancement/correction, it would have been obvious to one of ordinary skill in the art to use a two threshold technique to further enhance the Buxton et al's one threshold technique. The motivation would be to achieve further accuracy or more desirable result when images of pixels are enhanced/corrected.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yixing Qin whose telephone number is 703-306-4142. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Coles can be reached on 703-305-4712. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

YQ


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